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[54] **SYSTEM AND METHOD FOR EMULATING A MOUSE INPUT DEVICE WITH A TOUCHPAD INPUT DEVICE**

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Related U.S. Application Data

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[52] U.S. Cl. **345/157; 345/173**
[58] Field of Search .... 340/706, 707, 709, 710, 340/712, 724, 726; 341/20; 178/18, 19; 273/148 B, 438, 434, DIG. 28; 74/471 XY; 200/6 A

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,071,691	1/1978	Pepper .
4,129,747	12/1978	Pepper .
4,148,014	4/1979	Burson .... 273/148 B
4,198,539	4/1980	Pepper .
4,293,734	10/1981	Pepper .
4,302,011	11/1981	Pepper .
4,313,113	11/1982	Thornburg 340/709
4,371,746	2/1983	Pepper .
4,430,917	2/1984	Pepper .
4,734,685	3/1988	Watanable 340/706
4,766,423	8/1988	Ono et al. 340/709

FOREIGN PATENT DOCUMENTS

2139762 12/1984 United Kingdom .

OTHER PUBLICATIONS

Foley et al; "Fundamentals of Interactive Computer Graphic"; Addison–Wesley Publishing Company; 1982; 80–83 and 212–215.

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[57] **ABSTRACT**

A system and method for emulating a mouse input device with a touchpad input device having a drag switch and touch device in which the direction of movement of the touch device across the touchpad surface is determined, a display cursor is caused to move in the same relative direction as the direction determined by the touch device, and the cursor movement is continued in that same relative direction either in or out of a drag mode, even after the touch device stops moving so as to allow the cursor to be moved a greater distance than the touch device.

38 Claims, 10 Drawing Sheets